

CLAIMS

1. A watermark insertion apparatus comprising:
a watermark insertion section that inserts in a
5 program watermark that differs for each program
distribution destination; and
a code insertion section that inserts in said program
watermark verification code that prevents said program
from operating correctly when said watermark is tampered
10 with;
wherein said watermark verification code is made
identical regardless of said distribution destination.
2. The watermark insertion apparatus according to
15 claim 1, wherein said watermark is generated from ID
information that uniquely determines a program
distribution destination.
3. The watermark insertion apparatus according to
20 claim 1, further comprising a function insertion section
that defines a function that outputs a predetermined
constant from said watermark and inserts an expression
that assigns said function to a variable in said program;
wherein
25 said watermark verification code is a conditional
branch that determines whether said variable and said
constant are equal, and when said variable and said
constant are not equal halts said program; and

said watermark verification code is made identical regardless of said distribution destination.

4. The watermark insertion apparatus according to
5 claim 1, wherein said watermark verification code is necessary for said program to be made to operate correctly.

5. The watermark insertion apparatus according to
claim 4, wherein said watermark verification code has
10 inserted a calculation expression that does not affect a decision statement of a decision branch generated from said watermark in said decision branch extracted from said program.

15 6. A watermark extraction apparatus comprising:
a program input section that inputs a program in which the watermark insertion apparatus according to claim 1 has inserted said watermark and said watermark verification code; and

20 a watermark detection section that extracts said watermark from said program and generates ID information that uniquely identifies said distribution destination based on said watermark;

wherein a distribution destination is identified
25 based on generated said ID information.

7. A program illegal distribution prevention system comprising:

the watermark insertion apparatus according to claim 1;

a program input section that inputs a program in which the watermark insertion apparatus according to claim 1 has inserted said watermark and said watermark verification code; and

a watermark detection section that extracts said watermark from said program and generates ID information that uniquely identifies said distribution destination based on said watermark;

wherein a distribution destination is identified based on generated said ID information.

8. The program illegal distribution prevention system according to claim 7, wherein said watermark insertion apparatus is provided at said distribution destination.

9. A watermark insertion method wherein:
watermark that differs for each program distribution destination is inserted in said program and said watermark is used;

said program is prevented from operating correctly when said watermark is tampered with; and

watermark verification code that is identical regardless of said distribution destination is inserted in said program.

10. A watermark insertion method wherein:

watermark that differs for each program
distribution destination is inserted in a program; and

a periphery of an insertion location of said
watermark or entire said program is converted while
5 maintaining specifications.

11. A watermark insertion program that causes a computer
to:

insert watermark that differs for each program
10 distribution destination in said program and use said
watermark;

prevent said program for distribution from
operating correctly when said watermark is tampered with;
and

15 insert watermark verification code that is
identical regardless of said distribution destination
in said program for distribution.

12. A watermark insertion apparatus comprising:

20 a watermark insertion section that inserts in a
program watermark that differs for each program
distribution destination; and

a conversion section that converts a part other than
a location at which said watermark is inserted while
25 maintaining specifications of said program.

13. The watermark insertion apparatus according to
claim 12, wherein said conversion section inserts an

execution code pair that does not affect specifications in a part other than a location at which said watermark is inserted.

5 14. The watermark insertion apparatus according to claim 12, wherein identification information is stored that indicates an insertion location of said watermark.

15 15. The watermark insertion apparatus according to claim 14, wherein said identification information is a method name or line number.

16. The watermark insertion apparatus according to claim 12, wherein said conversion section performs
15 obfuscating so that specifications are not affected in a part other than a location at which said watermark is inserted.

17. A watermark extraction apparatus comprising:
20 a program input section that inputs a program in which the watermark insertion apparatus according to claim 12 has inserted said watermark; and
a watermark detection section that extracts said watermark from said program;
25 wherein a distribution destination is identified based on extracted said watermark.

18. A watermark extraction apparatus comprising:

a program input section that inputs a program in which the watermark insertion apparatus according to claim 15 has inserted said watermark; and

5 a watermark detection section that obtains said identification information, identifies a watermark insertion location from said identification information, and extracts said watermark from only identified said watermark insertion location;

10 wherein a distribution destination is identified based on extracted said watermark.

19. A program that causes a computer to:

insert in a program watermark that differs for each program distribution destination; and

15 convert a part other than a location at which said watermark is inserted without changing specifications of said program.

20. The watermark insertion apparatus according to claim 12, wherein said conversion section converts a sequence of a part that is a part other than a location at which said watermark is inserted and is a part that does not affect specifications even if said sequence is switched around.

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21. The watermark insertion apparatus according to claim 20, wherein historical information on a part that does not affect said specifications is held, and using

said historical information, conversion of a part that does not affect said specifications is made to differ for each distribution destination.